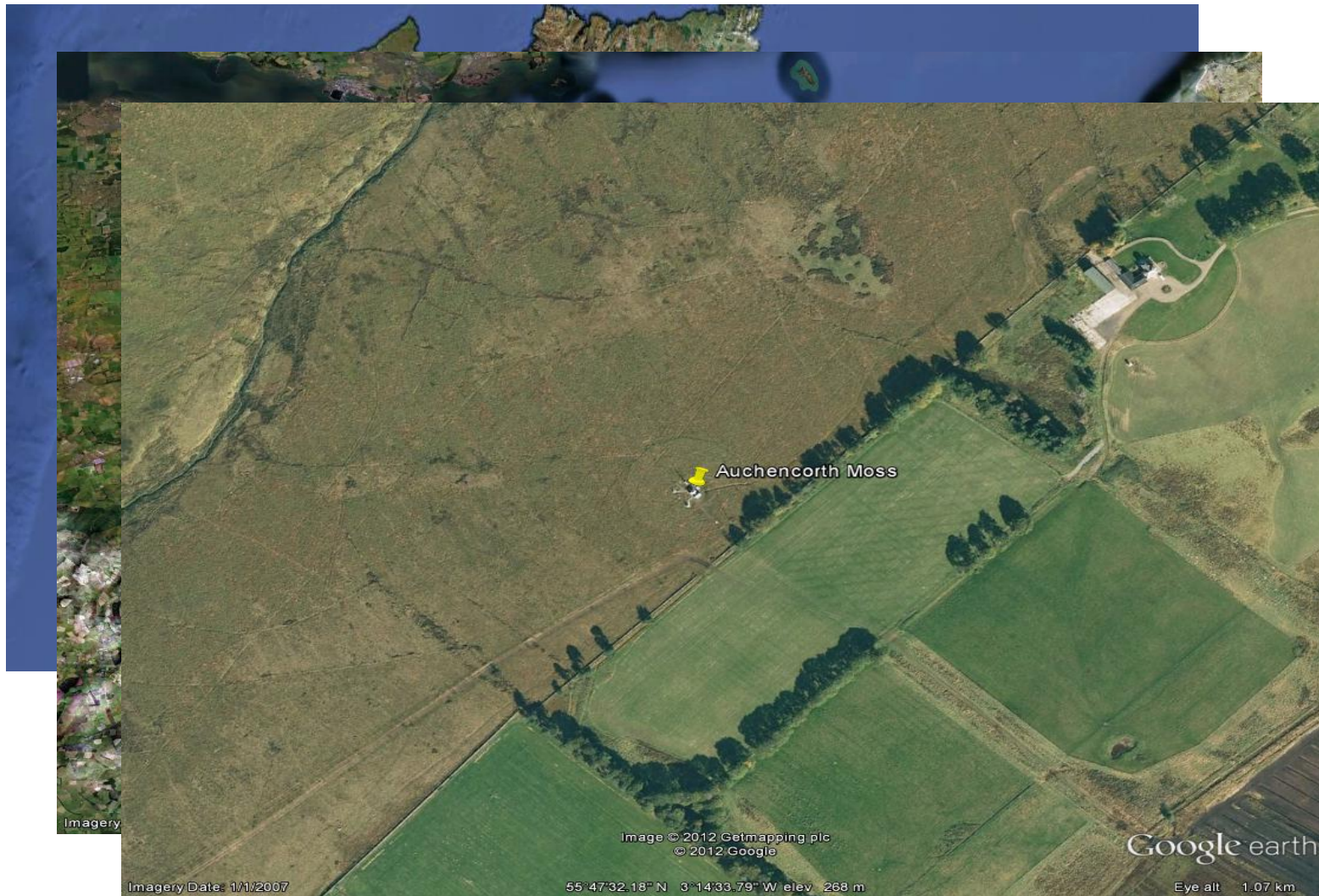


Mercury at the UK EMEP supersite Auchencorth Moss: Trends, patterns and sources

Auchencorth Moss



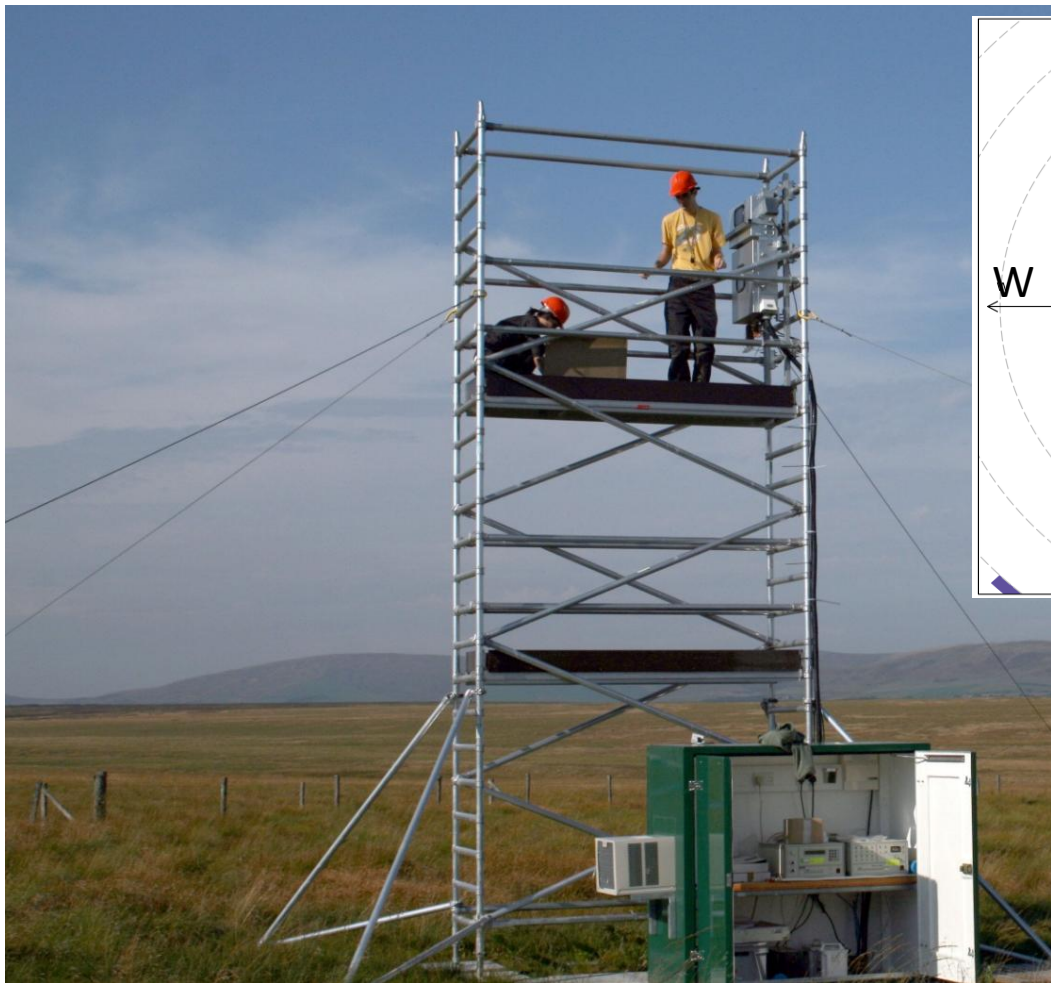
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Google Earth, Google Inc.

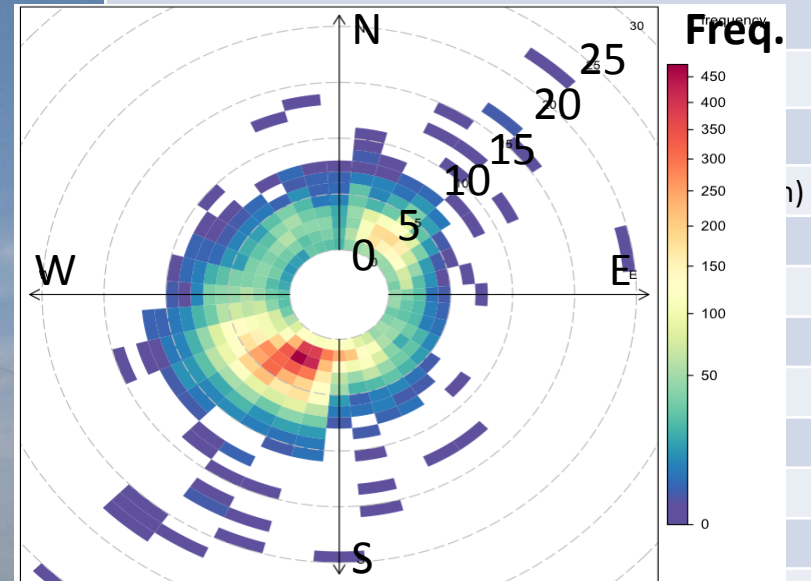


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ENVIRONMENT
RESEARCH COUNCIL**

Site Characteristics



Measurement



Particle size and number

Mercury (elemental) in air

Mercury (speciated) in air

Mercury (precipitation)

Heavy metals PM10 (air)

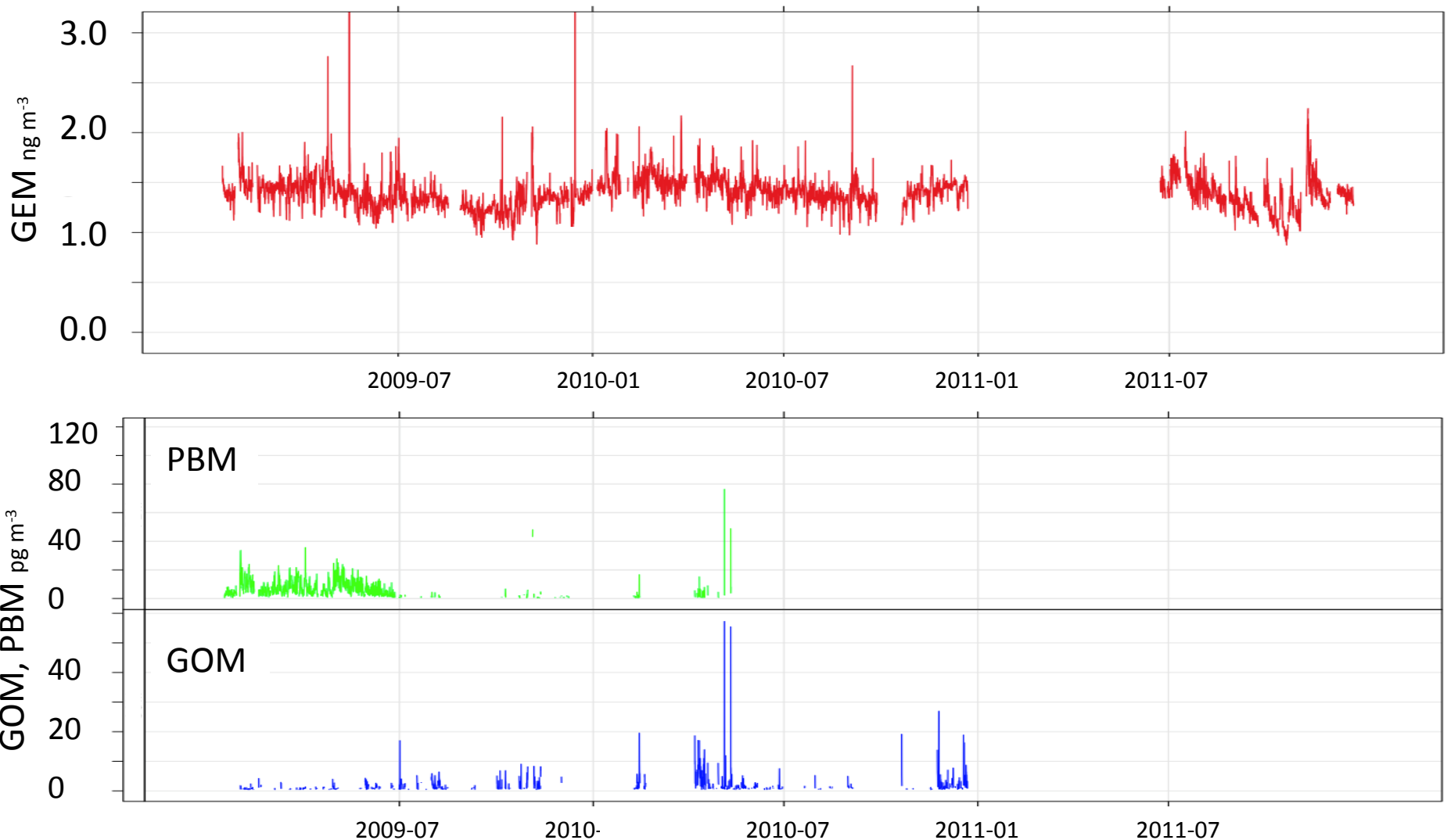
Heavy metals (precip'n)

Ozone, NO_x, SO₂ fluxes

Trace gas fluxes

ECOC (weekly)

Summary Plots / Statistics

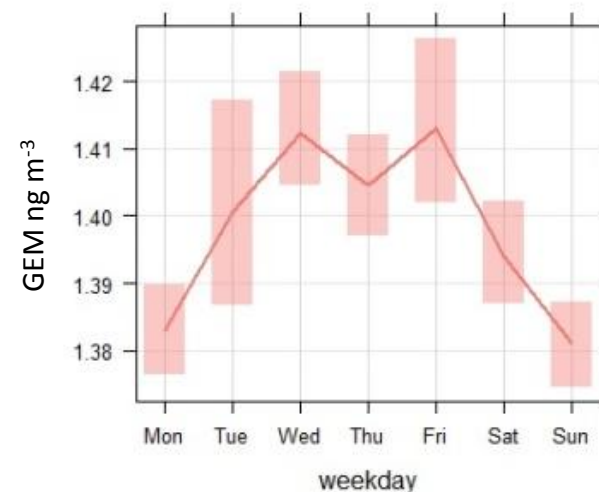
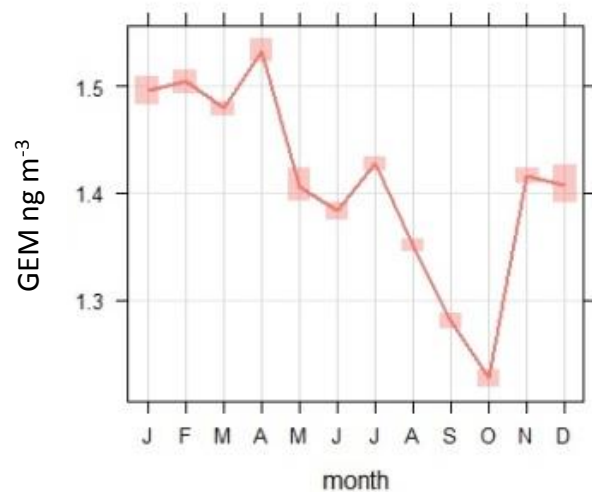
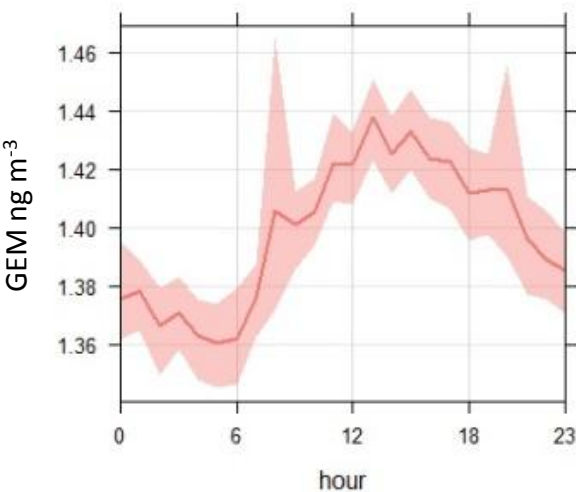
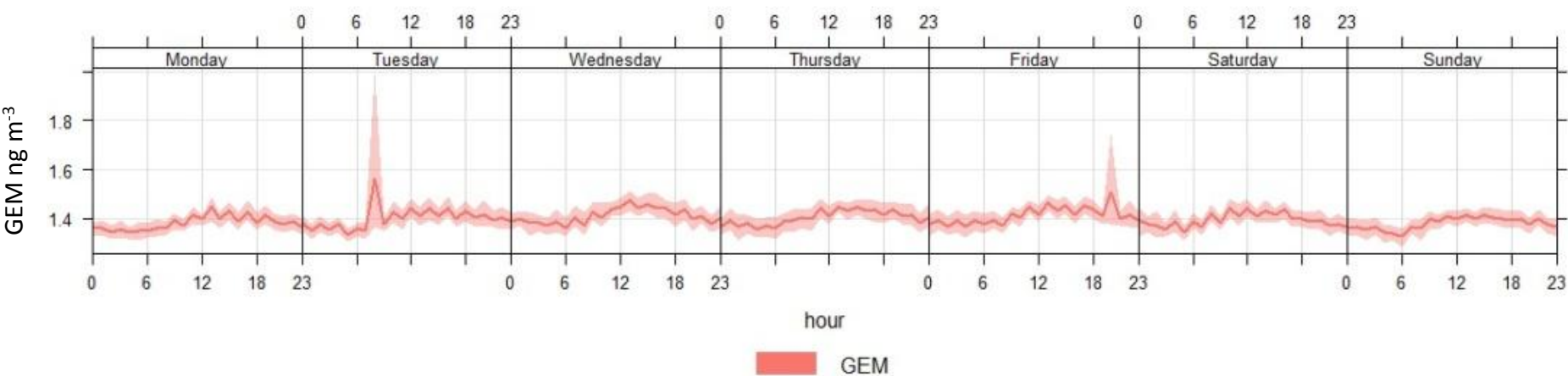


Summary Plots / Statistics

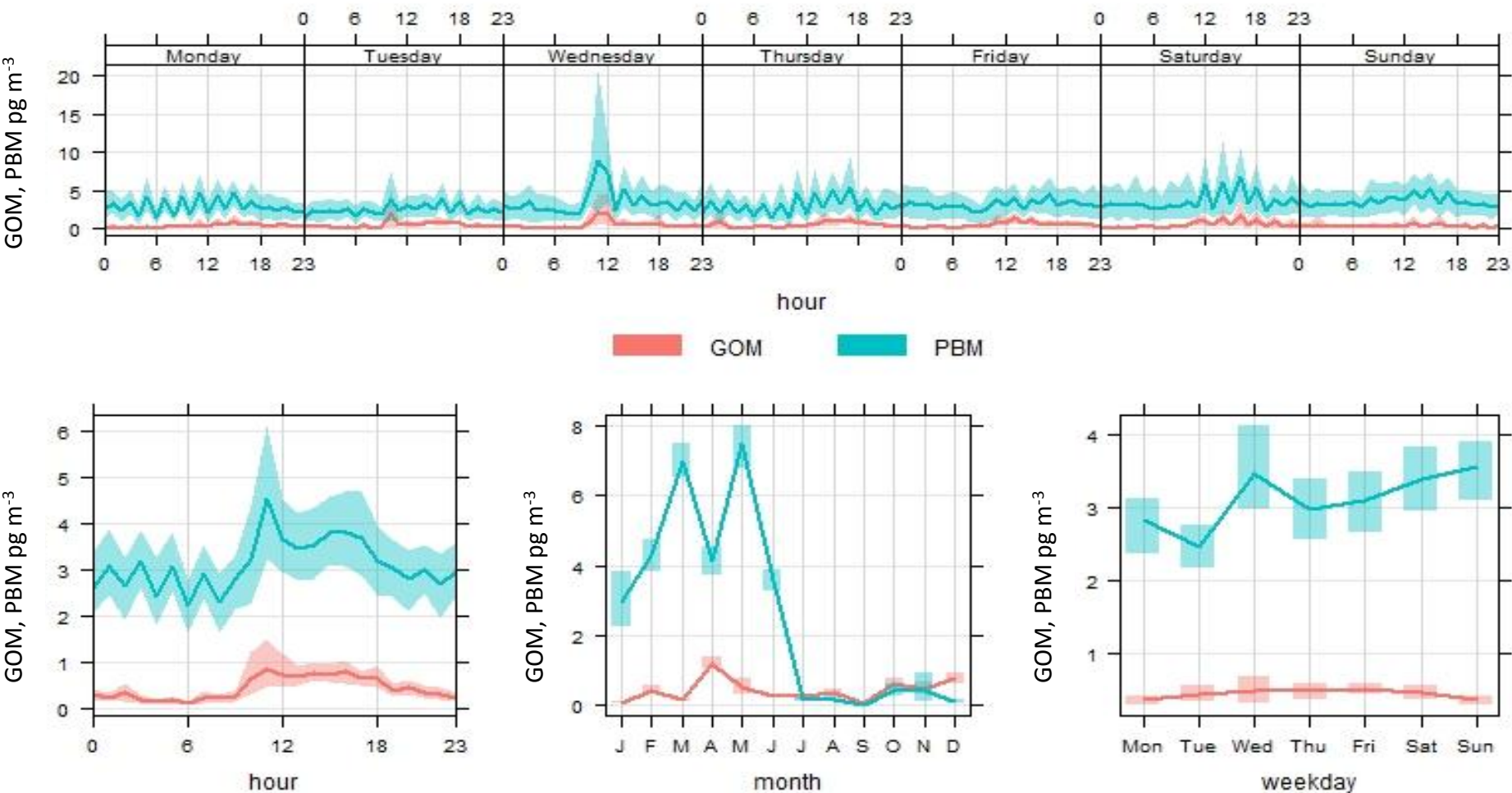
All
values in
ng m⁻³

ng m ⁻³	Spring	Summer	Autumn	Winter	Annual Mean
2009					
Hg ⁰	1.45	1.33	1.26	1.43	1.36
PBM	0.008	0.004	0.003	0.007	0.007
GOM	0.001	0.002	0.002	0.001	0.002
2010					
Hg ⁰	1.49	1.39	1.38	1.51	1.45
PBM	0.005			0.004	0.005
GOM	0.004	0.001	0.002	0.003	0.003
2011					
Hg ⁰		1.45	1.326	1.39	1.38
PBM					
GOM					
Seasonal Mean					
Hg ⁰	1.47	1.39	1.32	1.46	
PBM	0.008	0.004	0.003	0.007	
GOM	0.003	0.002	0.002	0.002	

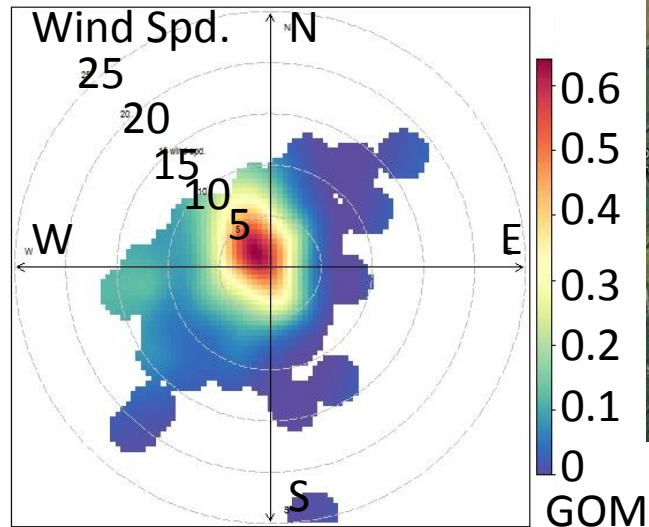
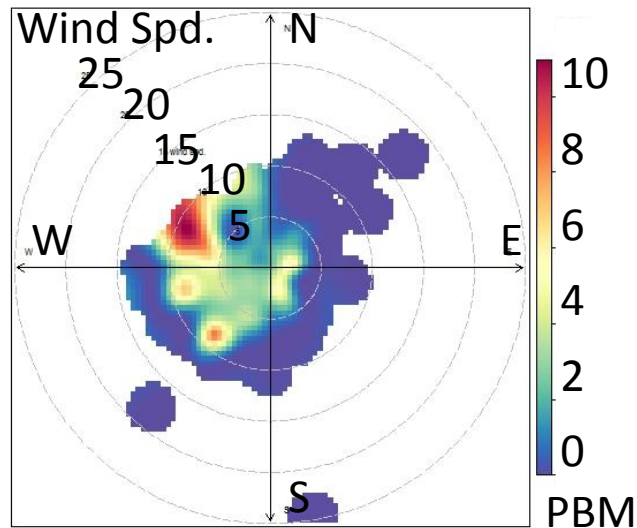
Trends and Patterns



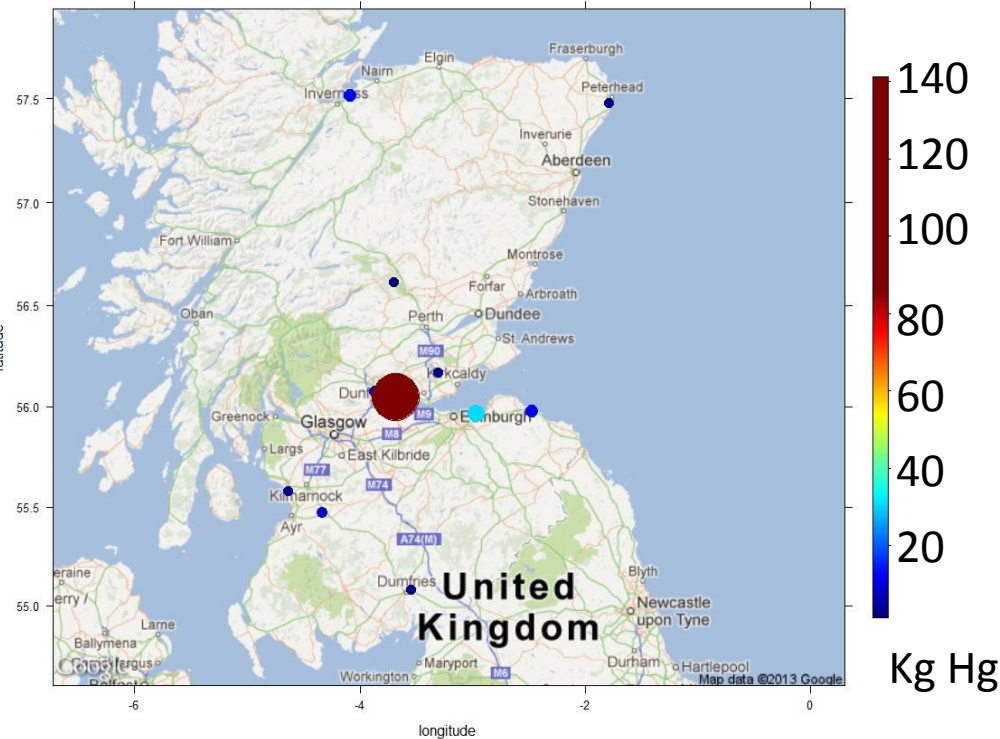
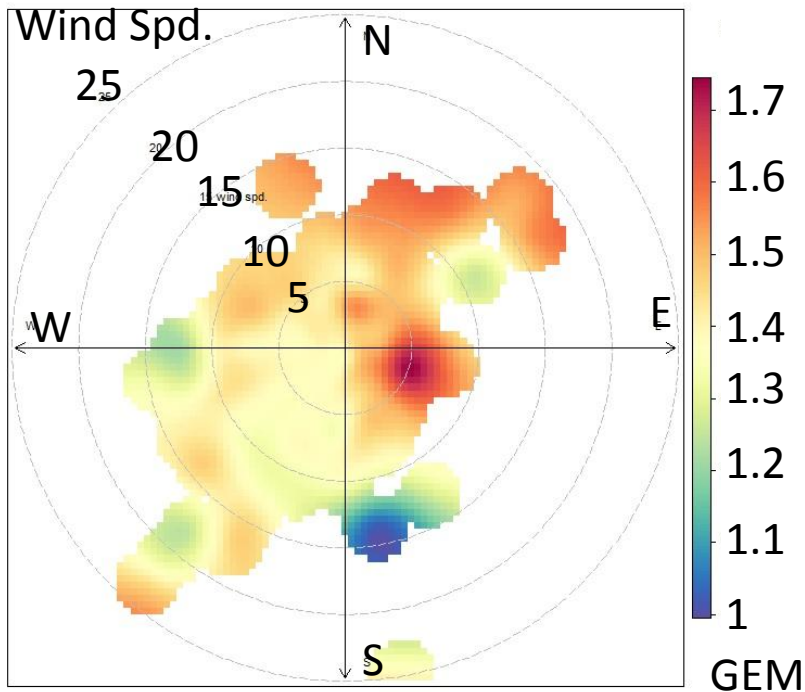
Trends and Patterns



PBM & GOM – Influences & Sources



GEM - Influences and Sources



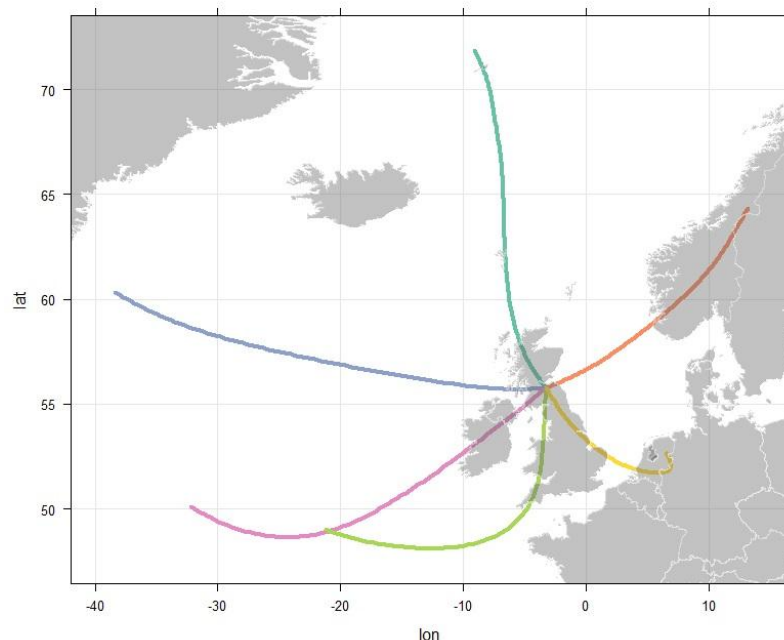
OpenAir Package for R, NERC, Kings College London, Defra, University of Leeds

Google Earth, Google Inc.

Point source data, S. E. P. A. (SEPA), Scottish Pollutant Release Inventory (SPRI),

http://www.sepa.org.uk/air/process_industry_regulation/pollutant_release_inventory.aspx, Accessed 20/05/2013, 2013.

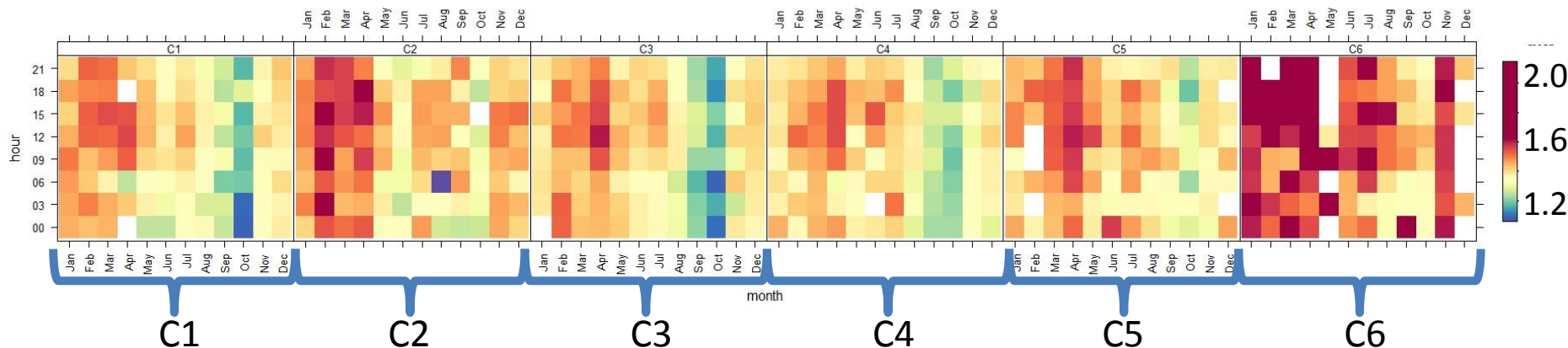
Long-range influences



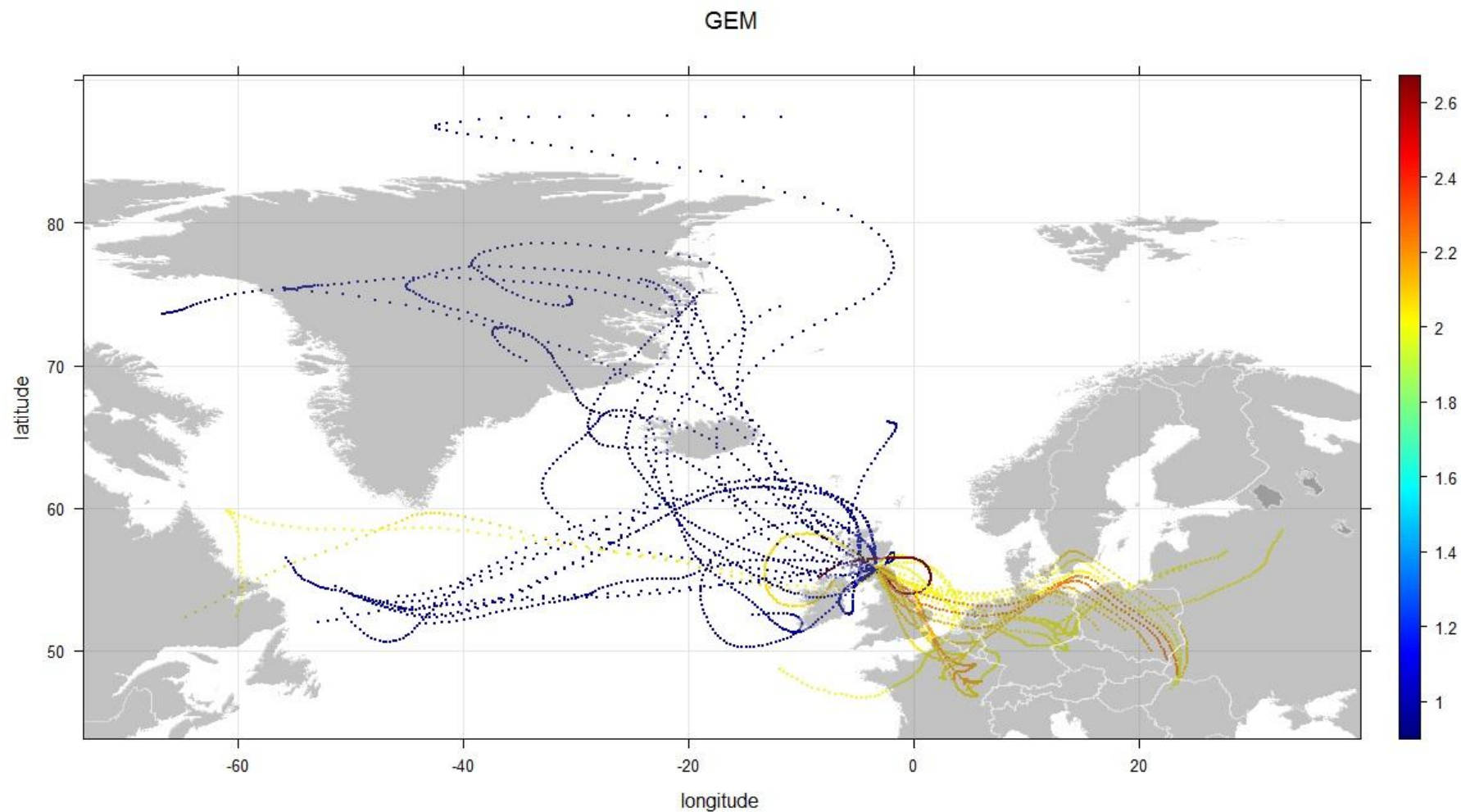
NOAA HYSPLIT Model - Air mass back trajectory cluster analysis

C1
C2
C3
C4
C5
C6

Cluster temporal variations



Long-range influences



Summary

- Auchencorth Moss is a rural background monitoring site in south-east Scotland.
- Between 2009-2011 the average GEM concentration for the site was 1.40 ng m^{-3}
- Influences on GEM at Auchencorth moss are both local, but with significant influence through long range transport.
- Air masses from mainland Europe have been shown to bring the higher levels of GEM to site, whilst Atlantic / Polar air masses bring the lowest.
- PBM and GOM are extremely low and generally $< \text{LoD}$.
- PBM levels may be influenced by peat extract work close to the site, but further work is needed to investigate this.

Thank you